AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented): A method of interlocking FFT window position recovery with sampling clock control in symbol units in an orthogonal frequency division multiplexing (OFDM) receiver for receiving an OFDM symbol consisting of a useful data interval and a guard interval, the method comprising the steps of:

(a) extracting a pilot signal from fast-Fourier-transformed OFDM received signals, and detecting inter-pilot phase differences;

(b) averaging phase differences detected in step (a) for a symbol to generate a mean phase difference value and normalizing the mean phase difference by dividing the mean phase difference value into reference values corresponding to phase differences generated when FFT window errors of at least one sample exist, thereby to generate a normalized value; and

(c) simultaneously controlling the FFT window position offset using a value obtained by rounding off the normalized value of the step (b), and the sampling clock offset using the difference between the round-off value and the normalized value.

2. (Original): The method of interlocking FFT window position recovery with sampling clock control in an OFDM receiver as claimed in claim 1, wherein the FFT window position offsets are controlled by integer values, and the sampling clock offsets are controlled by fraction values.

3. (Previously Presented): An OFDM receiver for interlocking FFT window position recovery with sampling clock control by receiving an OFDM symbol consisting of a useful data interval and a guard interval, the apparatus comprising:

an analog-to-digital converter (ADC) for converting an OFDM signal into digital complex samples;

an FFT window for removing the guard interval from the digital complex samples output by the ADC and outputting useful data samples;

an FFT for fast-Fourier-transforming the samples output by the FFT window;

a phase difference calculator for calculating phase differences between two values among the complex values received via a plurality of pilots from the FFT, averaging the phase differences for one symbol to generate a mean phase difference value, and normalizing the mean phase difference value by dividing the mean phase difference value into predetermined reference values;

an FFT window controller for rounding off the normalized value output by the phase difference calculator and controlling the window position of the FFT window; and

a phase synchronous loop for controlling the sampling clock signals of the ADC using the difference between the round-off value and the normalized value.

4. (Previously Presented): The OFDM receiver for interlocking FFT window position recovery with sampling clock control as claimed in claim 3, wherein the phase difference calculator comprises:

a phase difference detector for detecting the phase differences between two pilots among the received complex values of the pilots output by the FFT;

a mean calculator for averaging the phase differences detected by the phase detector for one symbol and generating the mean phase difference value; and

a normalizer for normalizing the mean value obtained by the mean calculator by dividing the mean phase difference value into reference values corresponding to phase differences generated when an FFT window error of one sample exists.

5. (Original): The OFDM receiver for interlocking FFT window position recovery with sampling clock control as claimed in claim 4, wherein the phase difference of the phase difference detector is set to be $\frac{\Delta \phi_{l,k_{n+1,n}}}{k_{n+1} - k_n}$, $k_{n+1} - k_n$ is a frequency spacing between two pilot carriers, and $\Delta \phi_{l,k_{n+1,n}}$ is an inter-pilot phase difference for an i-th symbol.

6. (Original): The OFDM receiver for interlocking FFT window position recovery with sampling clock control as claimed in claim 4, wherein the mean value of the mean calculator is set to be $\frac{1}{L} \sum_{n=1}^{L} \frac{\Delta \phi_{l,k_{n+1,n}}}{k_{n+1} - k_n}$, and L represents the number of used pilots.

7. (Currently Amended): The OFDM receiver for interlocking FFT window position recovery with sampling clock control as claimed in claim 4, wherein the normalization of the

normalizer is carried out by multiplying [[$\frac{N}{2\pi}$]] $\frac{1}{2\pi \cdot N}$ by the mean value, wherein N is the number of useful data samples.

8. (New): The method of interlocking FFT window position recovery with sampling clock control in an OFDM receiver as claimed in claim 1, wherein the averaging the phase differences detected in step (a) for the symbol to generate the means phase difference value comprises $\frac{1}{L} \sum_{n=1}^{L} \frac{\Delta\phi_{l,k_{n+1},n}}{k_{n+1} - k_n}$, wherein $k_{n+1} - k_n$ is a frequency spacing between two pilot carriers, $\Delta\phi_{l,k_{n+1},n}$ is the inter-pilot phase difference for an i-th symbol, and L represents the number of used pilots.